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EXAMINER	
CERNOCH, STEVEN MICHAEL	
ART UNIT	PAPER NUMBER
3752	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/568,792	PELTOLA ET AL.	
	Examiner	Art Unit	
	STEVEN M. CERNOCH	3752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 December 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *17 February 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

Claims 1-10 and 14-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Relyea et al. (US Pat No 5,301,756) in view of Glowienke (US Pat No 4,043,397).

Re claim 1, Relyea et al. shows piercing a shell of a burning object by pushing at least one elongated piercing tool arranged in a rescue boom from the side of a first surface of the shell to the side of a second surface thereof (Fig. 13), feeding, along at least one longitudinal channel (Fig. 3, 49) in the piercing tool, a fire extinguishing medium (column 6, lines 21-31) to a nozzle (Fig. 15, 200) provided in the piercing tool, spraying the fire extinguishing medium to the side of the second surface of the shell through a plurality of orifices provided in the nozzle (column 10, line 42).

Relyea et al. does not teach an orifice pattern that shows directing a plurality of single jets expelled from the orifices so that they intersect one another to form a single uniform jet having a flat curtain-like shape.

However, Glowienke who teaches a fire fighting nozzle that is inserted into an object to spray a fluid onto a fire does show an orifice pattern that teaches directing a plurality of single jets expelled from the orifices so that they intersect one another (Fig. 6, 19) to form a single uniform jet having a flat curtain-like shape (Fig. 1, 34).

Therefore it would have been obvious to one of ordinary skill in the art to provide the orifices of Relyea et al. with the orifice pattern of Glowienke to stop the flames from looping (col. 3, lines 9-15).

Re claim 2, Relyea et al. as modified by Glowienke show using said jet in order to confine a seat of fire (Relyea - column 9, lines 19-23 and 33-36).

Re claims 3 and 4, Relyea et al. as modified by Glowienke show turning the nozzle and the piercing tool around the longitudinal axis of the piercing tool in order to turn the curtain-like jet (Relyea - column 1, lines 55-59).

Re claim 5, Relyea et al. shows a boom provided with at least one movable boom part connected to a base (Fig. 3), at least one piercing tool arranged at a free end of the boom (Fig. 15, 198), the piercing tool being an elongated piece comprising at least one longitudinal channel (194), at least one actuator for moving the piercing tool in the longitudinal direction of the piercing tool with respect to an outermost end of the boom (column 1, lines 55-59), at least one feed channel for feeding a fire extinguishing medium to the channel in the piercing tool (column 6, lines 21-31), at least one nozzle (Fig. 15, 200), which is an elongated piece and which is connected to the channel in the piercing tool (column 10, lines 40-44), the fire extinguishing medium being arranged to be fed through a plurality of orifices provided in the nozzle (column 10, line 42), and wherein in the longitudinal cross section of the nozzle, the orifices in the nozzle are arranged to pass via substantially the same imaginary plane so that the fire extinguishing medium fed through the orifices (column 9, lines 33-36).

Relyea et al. does not teach an orifice pattern that shows a plurality of single jets which intersect one another to form a single uniform jet having a flat curtain-like shape.

However, Glowienke who teaches a fire fighting nozzle that is inserted into an object to spray a fluid onto a fire does show an orifice pattern that teaches directing a

plurality of single jets expelled from the orifices so that they intersect one another (Fig. 6, 19) to form a single uniform jet having a flat curtain-like shape (Fig. 1, 34).

Therefore it would have been obvious to one of ordinary skill in the art to provide the orifices of Relyea et al. with the orifice pattern of Glowienke to stop the flames from looping (col. 3, lines 9-15).

Re claim 6, Relyea et al. as modified by Glowienke shows means are provided in connection with the piercing tool for turning the curtain-like jet expelled from the nozzle with respect to the longitudinal axis of the piercing tool (Relyea - column 1, lines 55-59).

Re claim 7, Relyea et al. shows a nozzle of a piercing tool for spraying a fire extinguishing medium, the nozzle being an elongated piece having a front end and a rear end and the nozzle comprising: fastening means at the rear end of the nozzle for fastening the nozzle to the piercing tool (Fig. 15, 195, 196, 197, 198), at least one feed channel for feeding a fire extinguishing medium to the nozzle (194), a plurality of orifices extending from the feed channel to an outer surface of the nozzle (200), however

Relyea et al. does not teach an orifice pattern where the orifices are being directed obliquely forwards such that the farther away from the front end of the nozzle a single orifice resides, the larger an acute angle between the middle axis of the orifice and the middle axis of the nozzle, and wherein in the longitudinal cross section of the nozzle, the orifices are arranged to pass via substantially the same imaginary plane so that the fire extinguishing medium fed through the orifices forms a plurality of single jets which intersect one another to form a single uniform jet having a flat curtain-like shape.

Glowienke who teaches a fire fighting nozzle that is inserted into an object to spray a fluid onto a fire does teach an orifice pattern where the orifices are being directed obliquely forwards such that the farther away from the front end of the nozzle a single orifice resides, the larger an acute angle between the middle axis of the orifice and the middle axis of the nozzle (Fig. 6), and wherein in the longitudinal cross section of the nozzle, the orifices are arranged to pass via substantially the same imaginary plane (Fig. 8) so that the fire extinguishing medium fed through the orifices forms a plurality of single jets which intersect one another to form a single uniform jet having a flat curtain-like shape (Fig. 1, 34).

Therefore it would have been obvious to one of ordinary skill in the art to provide the orifices of Relyea et al. with the orifice pattern of Glowienke to stop the flames from looping (col. 3, lines 9-15).

Re claim 8, Relyea et al. as modified by Glowienke does teach the cross section of the single orifices in the nozzle is dimensioned to be the larger the smaller the angle between the middle axis of the orifice and the middle axis of the nozzle so that the curtain-like jet is arranged to extend to a larger distance at the front of the nozzle than on the sides of the nozzle (Glowienke - Fig. 8, 25 & 26).

Re claim 9, Relyea et al. as modified by Glowienke shows the nozzle is a sleeve-like piece, and the front end of the nozzle is provided with connecting means for fastening a separate tip piece (Relyea - Fig. 15, 196, 197, 198).

Re claim 10, Relyea et al. as modified by Glowienke teaches in the longitudinal cross section of the nozzle, the orifices are arranged successively in a first line of

orifices and in a second line of orifices, and the first line of orifices resides on a first side of the middle axis of the nozzle while the second line of orifices resides on a second side of the middle axis thereof so that the nozzle is arranged to form a uniform, curtain-like jet extending to the sides and to the front of the nozzle (Glowienke - Fig. 8).

Re claim 14, Relyea et al. as modified by Glowienke shows the step of extending a curtain-like flat jet to the front of the piercing tool (Glowienke – Fig. 1, 34).

Re claim 15, Relyea et al. as modified by Glowienke shows wherein the orifices of the nozzle are directed obliquely forward (Glowienke – Fig. 6).

Re claim 16, Relyea et al. shows a method for fire-fighting, the method comprising: piercing a shell of a burning object by pushing a substantially conical nozzle (Fig. 15, 200) of at least one elongated piercing tool arranged in a rescue boom from the side of a first surface of the shell to the side of a second surface thereof (Fig. 13), feeding, along at least one longitudinal channel (Fig. 3, 49) in the piercing tool, a fire extinguishing medium (col. 6, lines 21-31) to the substantially conical nozzle provided in the piercing tool, spraying the fire extinguishing medium to the side of the second surface of the shell through a plurality of orifices provided in the substantially conical nozzle, the substantially conical nozzle having a solid front (Fig. 15, 198) most portion between a front most pair of the plurality of orifices

Relyea et al. does not teach an orifice pattern which shows directing a plurality of single jets expelled from the orifices so that they intersect one another to form a single uniform jet having a flat curtain-like shape.

However, Glowienke who teaches a fire fighting nozzle that is inserted into an object to spray a fluid onto a fire does show an orifice pattern that teaches directing a plurality of single jets expelled from the orifices so that they intersect one another (Fig. 6, 19) to form a single uniform jet having a flat curtain-like shape (Fig. 1, 34).

Therefore it would have been obvious to one of ordinary skill in the art to provide the orifices of Relyea et al. with the orifice pattern of Glowienke to stop the flames from looping (col. 3, lines 9-15).

Re claim 17, Relyea et al. shows a nozzle of a piercing tool for spraying a fire extinguishing medium, the nozzle being an elongated piece having a front end and a rear end and the nozzle comprising: a substantially conical front end (Fig. 15, 198) for piercing a shell of a burning object; fastening means at the rear end of the nozzle for fastening the nozzle to the piercing tool (Fig. 15, 195, 196, 197, 198), at least one feed channel for feeding a fire extinguishing medium to the nozzle (194), a plurality of orifices extending from the feed channel to an outer surface of the nozzle (200); and a solid front most portion (Fig. 15, 198) of the conical front end between a front most pair of the plurality of orifices.

However, Relyea et al. does not teach an orifice pattern where the orifices are being directed obliquely forwards such that the farther away from the front end of the nozzle a single orifice resides, the larger an acute angle between the middle axis of the orifice and the middle axis of the nozzle, and wherein in the longitudinal cross section of the nozzle, the orifices are arranged to pass via substantially the same imaginary plane so that the fire extinguishing medium fed through the orifices forms a plurality of single

jets which intersect one another to form a single uniform jet having a flat curtain-like shape.

Glowienke who teaches a fire fighting nozzle that is inserted into an object to spray a fluid onto a fire does show an orifice pattern that teaches the orifices being directed obliquely forwards such that the farther away from the front end of the nozzle a single orifice resides, the larger an acute angle between the middle axis of the orifice and the middle axis of the nozzle (Fig. 6), and wherein in the longitudinal cross section of the nozzle, the orifices are arranged to pass via substantially the same imaginary plane (Fig. 8) so that the fire extinguishing medium fed through the orifices forms a plurality of single jets which intersect one another to form a single uniform jet having a flat curtain-like shape (Fig. 1, 34).

Therefore it would have been obvious to one of ordinary skill in the art to provide the orifices of Relyea et al. with the orifice pattern of Glowienke to stop the flames from looping (col. 3, lines 9-15).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Relyea et al. (US Pat No 5,301,756) in view of Glowienke et al. (US Pat No 4,043,397) as applied to claims 1-10, 14 and 15 above, and further in view of Geddes et al. (US Pat No 2,246,797).

Re claim 11, Relyea et al. as modified by Glowienke teaches all of the limitations of independent claim 7, but does not teach that the outer surface of the nozzle is provided with at least one longitudinal groove at the first line of orifices and at least one longitudinal groove at the second line of orifices.

However, Geddes does teach that the outer surface of the nozzle is provided with at least one longitudinal groove at the first line of orifices and at least one longitudinal groove at the second line of orifices (Figs 2 & 4, 42).

It would have been obvious to one of ordinary skill in the art to combine the nozzle of Relyea et al. and the orifice pattern of Glowienke with the grooves of Geddes so they may flare outwardly in the radial plane (col. 3, lines 28-29).

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Relyea et al. (US Pat No 5,301,756) in view of Glowienke (US Pat No 4,043,397) as applied to claims 1-10, 14 and 15 above, and further in view of Geddes (US Pat No 2,246,797) and Nicholson (US Pat No 4,435,891).

Re claim 12, Relyea et al. as modified by Glowienke and Geddes teach all of the claimed limitations of dependent claim 11 but do not teach the at least one longitudinal groove at the second line of orifices.

However, Nicholson et al. does teach the at least one longitudinal groove at the second line of orifices (Figs 1 & 2, 12 & 18).

It would have been obvious to one of ordinary skill in the art to combine the nozzle of Relyea et al. and the orifice pattern of Glowienke et al. and the grooves of Geddes with the 2nd line grooves of Nicholson to ensure no bacteria can accumulate (col. 3, lines 20-24).

Re claim 13, Relyea as modified by Glowienke, Geddes and Nicholson teach all of the claimed limitations of dependent claim 12 including the shape of the bottoms of

the grooves in the outer surface of the nozzle are inwardly curved (Nicholson - Fig. 3, 18, 18' &18").

Response to Arguments

Applicant's arguments filed 12/29/2010 have been fully considered but they are not persuasive. Regarding applicant's arguments of the Glowienke reference, as stated by applicant, figure 2 illustrates the spray pattern, however applicant is mistaken in that the plurality of single jets do in fact intersect. As can be seen in figure 2 the lines representing the jets start at different points and if one were to follow all of the lines back to the tip of the nozzle at least some of them would intersect. This occurs because the water leaving the nozzle from the plurality of nozzles present in jet form would have no choice but to intersect. Further, the argument of claim 7 that Glowienke does not teach the orifices being obliquely forward such that the farther away from the front end of the nozzle a single orifice resides, the larger an acute angle between the middle axis of the orifice and the middle axis of the nozzle, if one looks at figure 6, one can see that the front of the nozzle is curved. This curve shapes the nozzle in a way that the outer orifices are actually further away from the very front of the nozzle which resides at the very center of the nozzle. Therefore, the farther away from the very center of the nozzle, the larger the acute angle between the axis of each orifice and the center axis of the nozzle. Finally, regarding the argument that Glowienke and Relyea teach away from one another, both are fire extinguishing nozzles including an orifice pattern that is inserted into an object to spray a fluid onto a fire. As per claims 16 and 17, please see the rejections above.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to STEVEN M. CERNOCH whose telephone number is (571)270-3540. The examiner can normally be reached on IFP.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Len Tran can be reached on (571)272-1184. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. M. C./
Examiner, Art Unit 3752
3/10/2011
/Jason J Boeckmann/
Primary Examiner, Art Unit 3752